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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,413	04/20/2004	Tamio Komatsubara	Q81183	2611
23373	7590	06/10/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			WALBERG, TERESA J	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/827,413

Applicant(s)

KOMATSUBARA ET AL.

Examiner

Teresa J. Walberg

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/20/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Hisajima et al (5,577,555).

Hisajima et al disclose a tube structure as claimed including a tube (21), a plurality of beads (20) protruding from an inner face of the tube (see Fig. 1), the beads being arranged at a predetermined pitch in an axial direction (see Fig. 3), the circumference of the tube (21) being divided at least into thirds (significantly more than thirds as shown in Fig. 3), the beads being aligned in a circumferential direction and the bead adjoining in an axial direction being shifted by substantially a half a circumference (see embodiment of Fig. 34).

3. Claims 1-5, 8-11, 14-17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Rhodes (4,470,452).

Rhodes discloses a tube structure as claimed including a tube (114), a plurality of beads (152) protruding from an inner face of the tube (see Fig. 5), the beads (152) being arranged at a predetermined pitch in an axial direction (see Fig. 7F), the circumference of the tube (21) being divided at least into thirds or fourths (significantly more than thirds or fourths is shown in Fig. 5), the beads

being aligned in a circumferential direction and the bead adjoining in an axial direction being shifted by substantially a half a circumference (see embodiment of Fig. 7F), beads being inclined by an angle of not more than 45 degrees (Fig. 7E), inclinations of adjacent beads being opposite (Fig. 7C).

4. A foreign patent application (Japan 2002-247319) was filed more than one year prior to the application for patent in the United States and published (as Japan 2004-85090) before the US filing date. This publication appears to be in the form of a published application, and not a patent, thus a rejection under 35 USC 102(d) would not be proper.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 7, 12, 13, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes (4,470,452).

Rhodes, as discussed above, discloses the claimed structure with the exception of specifying the bead height and diameter of the indentations and the diameter of the heat exchanger.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to provide

the beads of Rhodes with a bead height and pitch and a tube diameter having the sizes claimed because Applicant has not disclosed that the bead height and pitch and the tube diameter provide an advantage, are used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with any desired bead height and pitch and tube diameter because these features would necessarily need to have sizes customized to the flow rates, fluid temperatures, and the size of the area available for the heat exchanger.

Therefore, it would have been an obvious matter of design choice to modify Rhodes to obtain the invention as specified in claims 6, 7, 12, 13, 18, and 19.


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee, Kuwahara et al, Hougland et al, Ludwig et al, Appelquist et al, Takahashi et al, and Beutler et al are cited to show tube structures with internal beads.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Teresa J. Walberg
Primary Examiner
Art Unit 3753

tjw